Module Description

Module name	Course Module of The Biology Learning Tools
Module level, if applicable	Magister of Biology Education
Code, if applicable	30061013
Subtitle, if applicable	-
Course, if applicable	The Learning Tools
Semester(s) in which the module istaught	III
Person responsible for the module	Lecturer of Courses
Lecturer	Dr. Hanum Isfaeni, M.Si., Rizahl Hendi, M.Pd
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is a mandatory course for Magister of Biology Education and offered in the 3rd semester.
Type of teaching, contact hours	Teaching methods used in this course are: - Lecture (i.e., group investigation, small group discussion, case study, and video-based learning) - Structured assignments (i.e., essays and case study The class size for lecture is 30 students. Contact hours for lecture is 23 hours, assignments are 28 hours
Workload	155.6 hours in one semester, which consist of: 19.6 hours for lecture : tutorial and discuss the subject 12.00 hours for structured assignments : doing exercices and problem solving or project, 75.00 hours for independent study : reading references, group discuss, finish the exercises. 34 hours for Project 15 hours for Paper 1 ECTS = 30 hours 155.6 hours = 5.2 ECTS -
Credit points	2 credit points (equivalent with 5.2 ECTS)

Requirements according to the examination regulations	Students must have attended all classes and submitted all class assignments that are scheduled before the final tests.
Recommended prerequisites	Students must have attended all classes and submitted all class assignments that are scheduled before the final tests.
Module objectives/intended learning outcomes	After completing the course and given with this case: **Learning Outcomes** **Social Competences:** 2. Able to apply analytical, critical, innovative, and abstraction thinking skills in the field of biology education (PLO2) 3. Able to work together in multicultural groups and collaborate with various parties/stakeholders in solving a problem in the field of education (PLO3). **Specific Competences:** 1. Able to manage and develop digital technology-based biology learning tools according to the characteristics of students (PLO7). 2. Able to analyze and synthesize problem solutions in biology learning through interdisciplinary, transdisciplinary and multidisciplinary approaches (PLO10)
Content	**Students will learn about:** The Concept of digital and conventional tools of learning. Development Theory Borg and Gall,
Forms of Assessment	Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Presence and Activity: 10%; Structured tasks: 20%; Mid Test: 30%; Final Test: 40%
Study and examination requirements and forms of examination	**Study and examination requirements:** - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend the exam to get final grade. **Form of examination:** Written exam: Essay
Media employed	Direct Whiteboard, Power Point Presentation, online conference platform

Reading List	1. Anderson, H. M., & Ph, D. (1970). The Cone of Experience. *Theory Into Practice*, *9*(2), 96–100. https://doi.org/10.1080/00405847009542260 2. Burke, & Hons, T. (2005). The Role of Teachinglearning Media in Teaching Biology. In *Most*. North-West University 3. Butcher, K. (2014). The Multimedia Principle. In R. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (Cambridge Handbooks in Psychology, pp. 174-205). Cambridge: Cambridge University Press. doi:10.1017/CBO9781139547369.010 4. Castro-Alonso, Juan & Sweller, John. (2020). The Modality Effect of Cognitive Load Theory. 10.1007/978-3-030-20135-7_7 5. Mauludin, R., Sukamto, A. S., & Muhardi, H. (2017). Penerapan Augmented Reality Sebagai Media Pembelajaran Sistem Pencernaan pada Manusia dalam Mata Pelajaran Biologi. *Jurnal Edukasi Dan Penelitian Informatika (JEPIN)*, *3*(2), 117. https://doi.org/10.26418/jp.v3i2.22676 6. Kumar, V., & Sharma, D. (2021). E-learning theories, components, and cloudcomputing- based learning platforms. *International Journal of Web-Based Learning and Teaching Technologies*, *16*(3), 1–16. https://doi.org/10.4018/IJWLTT.20210501.oa1 7. Learning, C., Instruction, M., Foundations, E., & Psychology, E. (2012). Encyclopedia of the sciences of learning. *In Encyclopedia of the Sciences of Learning*. https://doi.org/10.1007/978-1-4419-1428-6 8. Martin, M. M., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports, 76*(2), 623–626. https://doi.org/10.2466/pr0.1995.76.2.623 9. Marton, F. (2014). Necessary conditions of learning. *Necessary Conditions of Learning*, January 2006, 1–308. https://doi.org/10.4324/9781315816876 10. Salomon, G. (1979). Media and symbol systems as related to cognition and learning. *Journal of Educational Psychology, 71*(2), 131–148. https://doi.org/10.1037/0022-0663.71.2.131 11. Salomon, G., & Gardner, H. (1986). The computer as educator: Lessons from television research. *Educational Researcher, 15*(1), 13–17. https://doi.org/10.3102/0013189X015001013 12.